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P R E F A C E.

THE Print from the Bust of his Royal Highness the Prince of Wales, which was intended to have been prefixed to the Ninth Volume of these Transactions (see Preface to that volume), being now completed, will be found here inserted.

The several Papers in the following sheets are, as usual, arranged under the different Classes into which the business of the Society is divided: and, in AGRICULTURE, it is presumed the Public will receive much satisfaction from the perusal of the several Letters on planting various kinds of Trees; the judicious remarks on Oaks and Chestnuts; and the Improvement of Waste

and Barren Land, by the rearing thereon a variety of mixed Forest-trees. The Letter from Mr. Dunn, giving an account of the Crop of Wheat raised on Land prepared by planting with Potatoes, instead of summer-fallowing (see Vol. IX, page 38), will tend to prove the advantage of that practice; and it is hoped that whoever shall think proper to adopt that mode of cultivation, will favour the Society with their observations thereon, that the country at large may be enabled to judge how far it may be proper to extend such practice, and on what soils, and under what circumstances, it will be most profitable. The Papers of Mr. Dann and Mr. Hunter will shew the advantages arising from the feeding Cattle and Sheep with Potatoes; and should that practice become general, and the preparing land for Wheat, by a crop of Potatoes, prove in general as beneficial as it has been in the case above mentioned, the advantages to the Public will prove of the very first importance.

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The Papers of Mr. Rogerfon and Mr. Smith, on the comparative Culture of Wheat, as well as those from Mr. Dann and Mr. Ambrose, on Turneps, will serve to throw considerable light on a question that has long, and still continues to divide the opinion of some of the most ingenious and skilful Agriculturists, and which the Society, by the offer of various Premiums, have endeavoured to solve. How far they have succeeded, must be left to the judgment of the Public; and as the Premiums for ascertaining the comparative merit of the Drill and Broad-cast Method in the Culture of Grain, Pulse, Turneps, &c. are renewed, it is to be expected a question of so much importance will in time be clearly determined : yet, when it is considered under what variety of circumstances of soil, situation, and seasons, all experiments in Agriculture are and must be made, it ceases to be a matter of surprise, that so little general knowledge can be drawn, and that consequently few, very few, clear and determined inferences can be deduced from them.

The culture of that useful drug, Rhubarb, will be found to extend itself in this country, as a plantation has been made in the neighbourhood of London, by Sir William Fordyce; and as the seeds of that plant may easily be procured, it is submitted to gentlemen possessed of large woods on light sandy soils; whether it might not be propagated to advantage in such situations, and produce its roots there without the expence and trouble of garden culture.

In the Paper from Mr. Poynter, on gaining Land from the Sea, a method of compressing the Bank, and rendering it in a short time sufficiently solid to resist the action of the winds and waves, will be found practised, and is well worthy the attention of such persons as may hereafter be engaged in similar works.

The advantages that arise to the proprietors of Wet or Springy Land, from complete and effectual Draining, are many
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and great. It was with pleasure the Society received so many claims this year for the Premiums offered for that article; and it cannot be doubted, that the Papers of those Candidates to whom the Society adjudged rewards in this class, will prove highly entertaining and satisfactory to the reader. Should further information be wanted, the papers and plans are reserved in the Society's Repository, and are open to the inspection of the Members and the Public.

Under the head of CHEMISTRY, a Paper is inserted on the use of Oak Leaves in tanning Leather, and relating some experiments intended to ascertain the value of the Leaves, when compared with Oak Bark. The art of tanning leather is of so much consequence, that many trials have been made to discover such cheap materials as would supply the place of Bark; and a handsome reward was given many years since, by the Society, to Mr. John Eldridge, for proving, by fair trial, the use of Oak

Saw-dust for that purpose, which, though attended with some inconveniences, proved that every part of the Oak contained the astringent matter, by the introduction of which into the pores of the hide, leather is formed. All these facts will probably be found of very great utility to the workmen, when the Legislature shall be pleased to revise and alter those laws which confine the Tanner to the use of certain materials *only* in his business, and may be said by that means to prevent any improvements in that branch of manufacture.

In the Class of POLITE ARTS will be found some Letters from Miss Greenland, describing a method of uniting Wax or Mastic with Water, by the medium of Gum Arabic, and thus obtaining a Menstruum for Painting in Encaustic, more perfect than that Miss Greenland possessed, when she presented a Picture painted in imitation of the Grecian manner, to the Society, and favoured them with those
Letters

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Letters on the subject which are inserted in the Fifth Volume of these Transactions: and it will be considered as a particular favour, by this Society, to receive an account of the success of any trials hereafter made in consequence of these communications.

In the Class of MANUFACTURES a Letter is inserted from the Rev. Mr. Swayne, respecting the culture of Silk in England, and tending to reconcile some seeming differences in opinion among those correspondents whose Papers on that subject have been already printed in these Transactions.

Some Letters are also inserted under this head, which accompanied a Shawl Counterpane, woven by Mr. Philip James Knights, of Norwich, and which being four yards wide, was, in the opinion of many proper judges, of greater breadth than any kind of goods of equal fineness and texture hitherto produced to the Society,

ciety, or to their knowledge manufactured in these kingdoms, and which appeared to be a laudable attempt to improve the manufacture of this country.

Under the head of MECHANICKS, several Plates and Descriptions of Machines are inserted; the first of which is a contrivance by Capt. Edward Pakenham, whose substitute for a Rudder is described in Vol. VII. page 203. He has now obliged the Society with a Drawing and Account of a Method of restoring Masts of Ships, when injured. The great utility of such a discovery must be evident to all those who are in any degree acquainted with the distress attending any defects in the masts of ships, either in the navy, or merchants service.

Notwithstanding the great improvements that have been made in Watches, intended to ascertain the Longitude at Sea; yet, as the principal parts on which their
accuracy

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accuracy depends are secured to the inventors by patent, the Society have judged it proper to reward an ingenious Artist for an improved Detached Escapement, of which an accurate plate is given, and which, in the opinion of most of the gentlemen of the profession, promises to be of very great advantage. As all matters for which rewards are given, are intended to be of public utility, the model is reserved in the Repository, and may be inspected by Artists and Workmen at all convenient times.

The being able, with a tolerable degree of accuracy, to ascertain the weight of Goods while they are raising by a Crane, is certainly a very desirable object; and a Plate and Description of a Model for that purpose is inserted in this volume.

In the Ninth Volume of these Transactions is inserted a Print of a Nail or Spike Drawer, which has been found on many occasions very useful; but this year a machine

chine of much more force and efficacy has been produced to the Society, and which, on repeated trials, was found to answer the purposes intended in the most perfect manner. A Plate of this Machine, and a Description of its several parts, will be found in the ensuing pages.

The frequent and fatal accidents that happen to the persons employed in Wheel-Cranes, have induced the Society repeatedly to bestow rewards for the discovering some efficacious method of preventing such mischiefs; and this year a Contrivance, intended to answer that purpose, having been produced, the Premium was adjudged to the Candidate; and a Plate and Description are now submitted to the Public. In this Machine, the effect of the gripe on the periphery of the wheel, when the man ceases to press upon the bar, and the consequent stopping of the Crane, promises to be of great advantage in preserving the men from that imminent danger they have been hitherto

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hitherto exposed to in the Walking-wheel Crane, and from which many lives have been lost, besides much injury done to the goods, &c. by the over-running of the load; all which a proper introduction and use of Cranes on this construction, will certainly prevent.

The preserving the lives of such persons as may be on board vessels stranded on a lee-shore, and the saving the valuables on board such vessels, are objects of the highest consideration to a maritime and commercial country; and a contrivance which promises to be of effectual use for those purposes having been produced to the Society, and the most accurate experiments in the power of a Committee to ascertain its utility, having been made, a Reward was given to the ingenious Contriver; and it is believed the Description in the following pages will enable any person to carry it into execution: but if any further information is wanting, reference may be had to a
complete

complete model of the whole apparatus, which is reserved in the Society's Collection.

Under the head of COLONIES and TRADE, are inserted several Papers, proving the advantages that have arisen, and are likely to arise, to the kingdom in general, and the county of Cornwall in particular, from the attention of George Unwin, Esq. to the revival of the Tin-Trade from Great-Britain to India and China; and also some Letters from Jamaica, shewing the state of the Cinnamon-trees in that island, from which there is great reason to expect, at some future period, very considerable advantages will accrue to the commerce of this country.

Having given a short detail of the contents of the several Papers in the following pages, it remains only to mention, that, on account of the present flourishing state of the finances of the Society, several additions

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ditions are made to the pecuniary rewards in the Book of Premiums, as will appear by the perusal of the book; and some new premiums are offered; as in AGRICULTURE, Class 15 and 17, for ascertaining the best method of raising Oaks, and securing plantations of Timber-Trees. The advantages that would arise to the Public by having these objects clearly determined, are too obvious to need expatiating upon. Class 106, a premium is inserted for discovering a method of making Hay in wet seasons. The benefit of such a discovery is universally allowed; and however difficult it may appear, yet in an age of improvement, such as the present, it seems remarkably strange that the means of gathering in the produce of the earth, in unfavourable weather, however necessary and important it may be in this climate, has hardly been attended to. It is therefore hoped, that the hint, here given, will stimulate ingenious persons to attempt the discovery of what, when known, would be of universal bene-

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fit to all countries subject to such variation of climate as that we live in.

The destruction of those Insects that ravage the Hop, and other plants, has been considered as a proper object of attention; and a Premium for the discovery will be found, Class 146.

A method of separating the Saccharine Substance from Treacle, and of securing Casks, have been judged fit matters for Premiums; and such will appear under the head of CHEMISTRY, Class 151 and 163.

In the Class of MANUFACTURES, Class 212, a Premium is offered for producing the best Plan for the Maintenance of the Poor. This was an early object of the Society's attention, and is now revived in hopes that some mode may be found out, whereby the great load under which the Public labour, may be alleviated, and the real industrious Poor more comfortably provided for.

From

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From some trials, there is reason to believe the Stalks or Bines of Hops may be converted into a material fit for the purposes of wicks for candles or lamps; and a Premium for so doing will be found Class 209.

An Honorary Reward is offered, Class 241, under the head of COLONIES and TRADE, to the person who shall discover a North-west Passage to the South Sea, which it is presumed may prove of very great advantage to the commercial interests of this kingdom; and a Premium is, in this Class, also offered for producing to the Society an effectual method of destroying the insect called the Borer, so destructive to the Sugar-Cane.

As it is the intention of this Institution to encourage, by every means in its power, all attempts to promote the Arts, Manufactures and Commerce of this country, the ingenious are invited to produce whatever may have a tendency so to do, whether

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mentioned in the Book of Premiums or not, as full attention will be paid to every work of merit, and the Artist rewarded in as ample manner as the Society are able, according to his desert, whereby he will not only secure honour and profit to himself, but will contribute to advance and increase those objects which are the immediate subjects of the Society's attention, and the undoubted causes of the present flourishing state of this Island.

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